TABLE 6.—*Floods in the Hudson River and tributaries, April, 1916.*

River.	Station.	Flood stage.	Above flood stage.		Crest—	
			From—	To—	Stage.	Date.
		Feet.			*Feet.*	
Hudson	Troy, N.Y.	14.5	1	3	19.3	2
Do.	Albany, N.Y.	12.0	1	3	15.8	2
Mohawk	Utica, N.Y.	11.0			10.8	2
Do.	Schenectady, N.Y.	15.0	1	2	19.8	2

TABLE 7.—*Floods in various rivers during April, 1916.*

River.	Station.	Flood stage.	Above flood stage.		Crest—	
			From—	To—	Stage.	Date.
		Feet.			*Feet.*	
Red River of the North.	Moorhead, Minn.	26.0	2	11	30.2	6
Delaware (West Branch).	Hale Eddy, N.Y.	12.0	2	2	12.6	2
Delaware (East Branch).	Fishs Eddy, N.Y.	10.0	2	2	11.8	2
White	White River Junction, Vt.	15.0	2	2	16.4	2
Connecticut	do	13.0	1	5	16.8	2
Do.	do	13.0	23	27	14.7	24
Do.	Holyoke, Mass.	9.0			8.9	3
Do.	Hartford, Conn.	16.0	1	7	20.8	3
Do.	do	16.0	26	26	16.3	26
Penobscot	West Enfield, Me.	12.0			11.9	5
Neuse	Neuse, N.C.	12.0	8	10	13.5	10
Do.	Smithfield, N.C.	13.0	9	9	13.1	9
Cape Fear	Elizabethtown, N.C.	20.0	10	11	22.9	10
West Pearl	Pearl River, La.	13.0	1	3	14.0	1
Gunnison (North Fork).	Paonia, Colo.	8.0	28	29	8.3	29
Kings	Piedra, Cal.	12.0			11.9	28, 29

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

DATES OF OPENING OF NAVIGATION THROUGH LAKE PEPIN.

Dates of opening of the Mississippi River (through Lake Pepin), as reported to the United States Engineers, St. Paul, Minn., by owners of the ferryboats, at Lake City, Minn., for the years 1861 to 1916, inclusive. The dates are when Lake Pepin was sufficiently clear of ice not to impede or endanger boats passing through.

Year.	Dates.	Year.	Dates.	Year.	Dates.
1861	Apr. 7	1880	Apr. 10	1899	Apr. 20
1862	Apr. 8	1881	Apr. 13	1900	Apr. 7
1863	Apr. 5	1882	Apr. 6	1901	Apr. 6
1864	Apr. 14	1883	Apr. 15	1902	Apr. 8
1865	Apr. 15	1884	Apr. 12	1903	Apr. 4
1866	Apr. 19	1885	Apr. 20	1904	Apr. 22
1867	Apr. 19	1886	Apr. 15	1905	Apr. 10
1868	Apr. 4	1887	Apr. 15	1906	Apr. 16
1869	Apr. 20	1888	Apr. 13	1907	Apr. 4
1870	Apr. 15	1889	Apr. 12	1908	Apr. 5
1871	Apr. 17	1890	Apr. 14	1909	Apr. 12
1872	Apr. 25	1891	Apr. 16	1910	Mar. 24
1873	Apr. 17	1892	Apr. 3	1911	Mar. 28
1874	Apr. 22	1893	Apr. 12	1912	Apr. 11
1875	Apr. 20	1894	Apr.[1] 3	1913	Apr. 14
1876	Apr. 22	1895	Apr. 15	1914	Apr. 14
1877	Apr. 17	1896	Apr. 17	1915	Apr. 13
1878	Mar. 9	1897	Apr. 6	1916	Apr. 10
1879	Apr. 4	1898	Apr. 1	Average date	Apr. 11

[1] Reported as Mar. 3, but evidently an error as to month, as the river was not open at St. Paul until Mar. 8, and at Red Wing until Mar. 21.

[J. N. R.]

SNOW SURVEYS IN CITY CREEK CANYON, UTAH, 1914, 1915, AND 1916.

By ALFRED H. THIESSEN, Meteorologist.

[Dated: Weather Bureau, Salt Lake City, Apr. 12, 1916.]

Snow surveys were made in City Creek Canyon by the Weather Bureau office at Salt Lake City, Utah, in March of 1914, 1915, and 1916. The accompanying map, figure 1, shows Salt Lake City with the creeks which furnish the city water. These creeks rise in the Wasatch Mountains east of the city, flow in a general westerly direction, and empty into Jordan River.

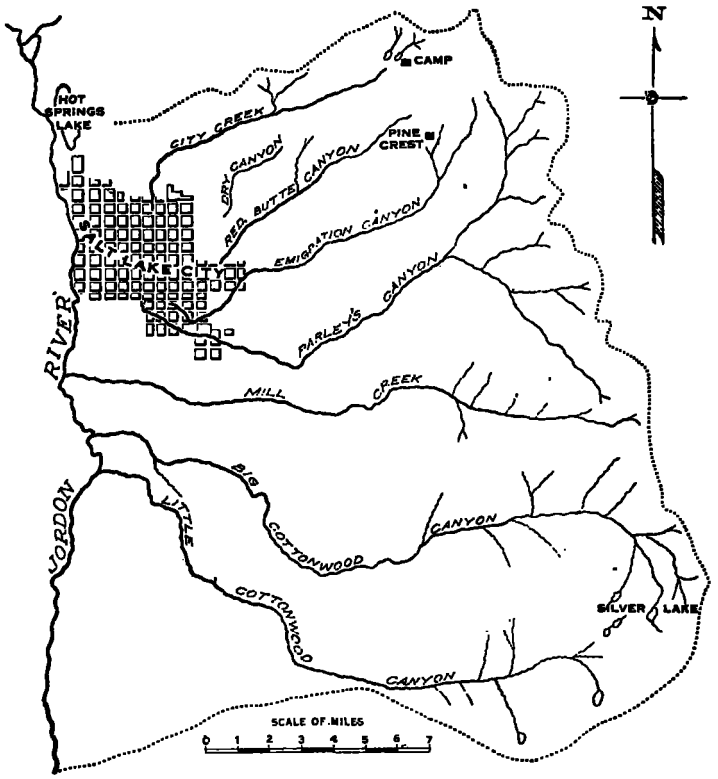

FIG. 1.—Salt Lake City, Utah, water supply is obtained from City Creek, Parleys, Emigration, and Big Cottonwood Canyons.

[Jordon River should be Jordan River.]

Salt Lake City has a right to all the water in City Creek, to 35 per cent of Big Cottonwood, to 85 per cent of Parleys, and to a small amount of Emigration canyons. It has been necessary in the past for the waterworks department to issue proclamations in the summer to the residents advising economy in the use of water, and at certain times to restrict its use for lawns to certain hours of the day or night. Under these conditions, it can be imagined how necessary it is for the waterworks department and the city engineer to know something about the available supply. The city engineer's office undertook surveying the snow in Big Cottonwood; no surveys have been made in Parleys, as it was thought that the measurements obtained in Big Cottonwood and City creeks would furnish a basis upon which the amount of water available in Parleys could be estimated.

All surveys in City Creek Canyon were made in substantially the same manner. The instrumental equipment consisted of an alpenstock graduated in inches and a Marvin snow-density tube with a balance. The region was carefully mapped, and the observations were entered in a notebook in regular sequence and also noted on a small map at the place of observation. By this method a comparison of the snow layers at the same places in different years could be made.